

### **REMARKS**

The present amendment is intended to be fully responsive to the Non-Final Office Action having a mailing date of November 16, 2007 wherein Claims 1-4, 10-13, 19, 23, 27 and 29 have been rejected. Claims 5-7, 9, 15, 16, 18, 24 and 25 are allowed and Claims 20-22, 26 and 28 have been deemed allowable but are objected to for being dependent upon claims which have been rejected.

By this amendment, Claims 1-4, 6, 10-12, 15, 19, 20, 23, 26, 27 and 28 have been amended and Claims 30-35 have been added. Claim 29 has been cancelled and Claims 8, 14 and 17 were previously cancelled. By this amendment, Claims 1-7, 9-13, 15, 16, 18-28 and 30-35 are now pending. Applicants submit that no new matter has been added by this amendment. Support for the claims, as amended, may be found in claims 2, 6, 11, 15, and 29, as originally presented, and elsewhere throughout the specification, drawings, and claims as originally presented.

Applicants thank the Examiner for the entry of the amendments and consideration of the arguments presented in the AMENDMENT IN RESPONSE TO NON-FINAL OFFICE ACTION filed by Applicants on August 31, 2007. Applicants further thank to Examiner for the withdrawal of the rejections under 35 USC 103(a) over Wheeler et. al. (6,445,992) in view of Takatori et al. (U.S. 6,743,150) and the rejections under 35 USC 103(a) over Wheeler in view of Jarvis (U.S. 5,072,815), for the comments in the Office Action responding to Applicants' arguments, and for finding that the application contains allowable subject matter.

Applicants respectfully request reconsideration of the presently pending claims in light of the following arguments. In view of these arguments, all claims are believed to be in condition for allowance over the prior art of record. Therefore, this response is believed to be a complete response to the Office Action. However, Applicants believe that there are also reasons other than those set forth below why the pending claims are patentable. Applicants therefore reserve the right to set forth further arguments supporting the patentability of their claims, including the separate patentability of the dependent claims not explicitly addressed herein, in future papers. Further, for any instances in which the Examiner took Official Notice in the Office Action, Applicants expressly

do not acquiesce to the taking of Official Notice, and respectfully request that the Examiner provide an affidavit to support the Official Notice taken in the next Office Action, as required by 37 CFR 1.104(d)(2) and MPEP § 2144.03.

## **I. CLAIMS DEEMED ALLOWED AND ALLOWABLE**

Applicants wish to thank the Examiner for allowing Claims 5-7, 9, 15, 16, 18, 24 and 25 and for indicating that Claims 20-22, 26 and 28 are allowable but objected to as being based on a rejected base claim. By this amendment, Claims 20, 26 and 28 have been placed in independent form. Formal allowance of these Claims is now respectfully requested. Claims 21, 22, are dependent upon allowable Claim 20 and therefore are also allowable. Similarly, new Claims 31 and 32 are dependent upon allowed claim 5 and new Claims 34 and 35 are dependent upon allowed Claim 24 and are therefore also allowable. Allowed dependent Claims 6 and 15 have been amended, but remain dependent upon allowed claims and therefore remain allowable. Formal allowance of Claims 5-7, 9, 15, 16, 18, 20-22, 24, 25, 26, 28, 31, 32, 34 and 35 is therefore respectfully requested.

## **II. SUMMARY OF CLAIM REJECTIONS**

Claims 1, 2, 4, 10, 11, 13, 19, 23 and 27 are rejected under 35 U.S.C. 102(b) as being anticipated by Wheeler et al., (U.S. 6,445,992). Claims 1, 3, 4, 10, 12, 13, 19, 23, 27 and 29 are rejected under 35 U.S.C. 102(b) as being anticipated by Ward et al., (U.S. 5,383,623). Applicants respectfully traverse these rejections in view of the amendments presented above and the arguments presented below.

## **III. REJECTION UNDER 35 U.S.C. § 102(a) OVER WHEELER**

Claims 1, 2, 4, 10, 11, 13, 19, 23 and 27 are rejected under 35 U.S.C. 102(b) as being anticipated by Wheeler. By this amendment, Claims 1, 2, 10, 11, and 19 have been amended, and Claims 30 and 33 have been added dependent upon Claims 1 and 10, respectively.

In the Office Action, the Examiner states:

“Wheeler et al discloses a clutch control determining a throttle operating parameter value (THL), comparing the value to a threshold value (first reference value), setting an operating mode of the clutch based on the throttle comparison (command clutch to engage), the parameter value corresponds to a throttle position, determining a vehicle operating condition (vehicle speed), comparing the condition to a predetermined limit (second reference value) and setting the operating mode based on the comparison (Figure 4), an electronic control unit (34) receives signals for the throttle parameter and controls the operating mode of the clutch, determining a desired fueling rate of the engine (a fuel rate is controlled by the throttle position which has a predetermined value (first reference value) and setting the engagement rate of the clutch based on the desired rate (engagement will have the same torque transfer capacities as the drive torque).”  
[Office Action at Page 3]

Applicants respectfully request reconsideration of this rejection.

**A. Rejection of Independent Claims 1 and 10 Using Wheeler**

Independent Claim 1, as Currently Amended, claims a “vehicle master clutch engagement method, comprising the steps of: determining a dynamic throttle operating parameter value; and setting an operating mode of the clutch based on the dynamic throttle operating parameter value.”

Independent Claim 10, as Currently Amended, claims a “control system for engaging a vehicular master clutch that comprises an electronic control unit for receiving signals corresponding to a dynamic throttle operating parameter value, the electronic control unit setting an operating mode of the clutch based on the dynamic throttle operating parameter value.”

To anticipate a claim, the reference must teach every element of the claim. A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). The identical invention must be shown in as complete detail as is contained in the ... claim. *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

Therefore, to anticipate Claims 1 and 10, Wheeler would have to expressly or inherently describe or show a method or system where an operating mode of a clutch is set based on a dynamic throttle operating parameter. It is respectfully submitted that Wheeler nowhere teaches or even suggests such a method or such a system. Wheeler explicitly teaches engaging the clutch on the basis of an *actual measurement of engine torque plus the condition of the brake pedal*. The actual engine torque is determined by the dynamics of the engine and the systems, inputs and loads associated with it. While the actual engine torque at any time is regulated by the operation of the throttle, it is also significantly subject to other inputs and operating conditions and therefore the measurement of engine torque at any given time is not a true corollary of a throttle parameter value. Engine torque is only indirectly related to a throttle operating parameter, let alone a dynamic throttle parameter. At best, engine torque is only loosely related to the recent history of accumulated throttle operating parameters.

Wheeler neither teaches nor suggests using a throttle operating parameter value to set an operating mode for the clutch to use. Instead, Wheeler uses torque information to determine the engine conditions under which the clutch will engage. [Wheeler col. 1 lines 47-54] In Wheeler, the throttle operating parameter is used to set an idle drive torque value  $T_{idle}$ . The clutch is commanded to engage when torque capacity =  $T_{idle}$ . [See for example Fig. 4 of Wheeler] Thus, the throttle operating condition will indirectly influence the timing of clutch engagement, along with numerous other factors relating to the engine operation. However, this does not set an operating mode for the clutch. For example, Wheeler neither teaches nor suggests that the clutch engage or disengage in a more or less aggressive fashion. Furthermore, Wheeler nowhere suggests setting an operating mode, as claimed in claims 1 and 10 but instead contemplates a single operational mode –

engagement of the clutch - regardless of any throttle operating parameter. Therefore, Wheeler can neither teach nor suggest setting an operating mode for the clutch based upon a throttle operating parameter but instead merely teaches that the clutch is to engage or not engage based on a torque parameter which is in small part the result of a throttle condition, along with several other conditions and inputs..

The Examiner has stated that “Although the throttle parameter in Wheeler is used indirectly, the throttle parameter is used in conjunction with other parameters to determine clutch operation and therefore would still be considered a parameter used to determine clutch operation, because without it in the Wheeler reference, the clutch operation would not be able to be determined (Figure 4 uses throttle according to predetermined reference value).” [Office Action at Page 2]

Applicants respectfully disagree. No throttle parameter is used in Wheeler, either directly or indirectly to determine the clutch operation. The history of throttle conditions indirectly contributes, along with other parameters and conditions, such as temperature, fuel composition, fuel system operation, engine load, etc. to the operation of the engine. In Wheeler, a parameter of the operation of the engine is measured - the engine torque - and that parameter is used to control the timing of clutch operation. Wheeler neither teaches nor suggests that any one of the various inputs that affect the engine torque be used to control the to operation of the clutch, let alone that a clutch operating parameter be singled out from these various inputs as a parameter to use to select an operating mode for the clutch.

Accordingly, the teachings of Wheeler do not anticipate Claims 1 and 10.

#### **B. Rejection of Dependent Claims 2, 4, 11 and 13 Using Wheeler**

Dependent Claims 2 and 4, dependent upon Claim 1 and dependent Claims 11 and 13, dependent upon Claim 10, are patentable over Wheeler by being dependent on independent claims which are allowable over Wheeler for the reasons provided above. Furthermore, the dependent Claims 2, 4, 11 and 13 have additional recitations nowhere taught or suggested by Wheeler.

For example, dependent Claims 2 and 11, as currently amended, claim “the dynamic throttle operating parameter value corresponds to throttle application rate” Wheeler nowhere discusses using throttle application rate as a throttle operating parameter value and therefore cannot teach or suggest this recitation.

The Examiner has stated, “As to claims 2 and 11, the phrase "throttle device displacement" as used in claim 1 of Wheeler can still be associated with the phrase "throttle application rate" as claimed in 2 and 11.” [Office Action at Page 2] Applicants respectfully disagree. A response of a system to a displacement is not the same as response of a system to a displacement rate.

Accordingly, the teachings of Wheeler can not anticipate Claims 2 and 11.

**C. Allowability of New Claims 30 and 33 over Wheeler.**

New dependent Claims 30 and 33, dependent upon Claims 1 and 10, respectively, are patentable over Wheeler by being dependent upon independent claims which are allowable over Wheeler for the reasons provided above. Furthermore, new dependent Claims 30 and 33 have additional recitations nowhere taught or suggested by Wheeler. In particular, new dependent Claims 30 and 33 claim that “the dynamic throttle operating parameter value corresponds to acceleration of throttle application.” Wheeler nowhere discusses using throttle application acceleration as a dynamic throttle operating parameter value and therefore cannot teach or suggest this recitation.

Accordingly, the teachings of Wheeler can not anticipate Claims 30 and 33.

**D. Rejection of Independent Claim 19 Using Wheeler**

Independent Claim 19, as Currently Amended, claims a “vehicle master clutch engagement method for use with a vehicle that includes a fuel controlled engine, a master clutch and a transmission, the method comprising the steps of: determining a desired fueling rate of the engine;

and setting an increasingly aggressive engagement rate of the clutch when the desired fueling rate of the engine is increasing.”

Wheeler nowhere teaches or suggests setting an engagement rate of the clutch based on a fueling rate.

First, Wheeler sets a target idle torque value based on a throttle value as well as several other inputs such as the status of the brake pedal and the parking brake. The fueling rate is determined by a controller to obtain the desired torque level [Wheeler col. 3 lines 23-25]. Subsequently, the control seeks to engage the clutch at the desired level of engine torque, regardless of the fueling rate. This places a load on the engine and the output torque will drop, resulting in a command to increase the fueling rate so as to maintain the desired torque. [Wheeler col.5, lines 5-24] Thus, Wheeler teaches that the both the fueling rate and the clutch engagement timing respond to the torque conditions, rather than that clutch engagement timing respond in any manner to the fueling rate.

Second, Wheeler has teachings only relevant to clutch engagement timing and has no teaching about engagement rate.

For at least these reasons, Wheeler fails to teach or suggest setting an engagement rate of the clutch based on a fueling rate. In fact, Wheeler nowhere suggests setting of engagement rate of a clutch by any method nowhere suggests using fueling rate as a parameter to control anything. Therefore, Wheeler nowhere teaches or suggests adjusting the clutch engagement rate, as claimed in claim 19, based on the desired fueling rate of the engine.

The Examiner has stated that “As to Claim 19, fuel rate is indirectly used to determine clutch operation with other parameters as stated above for the throttle parameter.” [Office Action at Page 2] Applicants respectfully disagree. As presented above herein with respect to throttle parameters, fueling rate is only one of multiple system inputs to engine operation. Wheeler fails to teach or suggest that fueling rate, or any of the other numerous inputs to engine torque, should be substituted for engine torque and used as a parameter to make a decision about clutch engagement.

Furthermore, even if the Examiner' were correct that control of a clutch by any of the inputs to engine torque may be substituted for control of the clutch by engine torque, Wheeler still fails to teach or suggest regulating the rate of clutch engagement in response to the measurement of torque, since Wheeler only teaches controlling the timing of clutch engagement.

Accordingly, the teachings of Wheeler can not anticipate claim 19.

**E. Allowability of Claims 23 and 27 over Wheeler.**

Claims 3 and 12, placed in independent form by this amendment, were not included in the list of claims rejected over Wheeler and are therefore believed to be allowable over Wheeler. Claims 23 and 27 have been amended to depend upon claims 3 and 12 and are therefore also allowable over Wheeler.

**F. Request For Withdrawal of Rejections Over Wheeler**

For at least the above reasons, Applicants submit that all claims now pending in the application are allowable over Wheeler. Applicants therefore respectfully request withdrawal of the rejection of Claims 1, 2, 4, 10, 11, 13, 19, 23 and 27 under 35 U.S.C. 102(b) over Wheeler.

**IV. REJECTION UNDER 35 U.S.C. § 102(a) OVER WARD**

Claims 1, 3, 4, 10, 12, 13, 19, 23, 27 and 29 are rejected under 35 U.S.C. 102(b) as being anticipated by Ward. By this amendment, Claim 29 is now cancelled, Claims 1, 3, 10, 12, 19, 23 and 27 have been amended, and Claims 30 and 33 have been added dependent upon Claims 1 and 10, respectively. Claims 3 and 12 have been placed in independent form.

In the Office Action, the Examiner states:

“Ward et al discloses a clutch control determining a throttle operating parameter value (THL), comparing the value to a threshold value (first reference value), setting an operating mode of the clutch based on the throttle comparison (command clutch to engage or



disengage, column 2, lines 8-12), the parameter value corresponds to a throttle position, the clutch engagement is rapidly increased according to the throttle operating parameter increasing (from 0% to 100%), determining a vehicle operating condition (engine or vehicle speed), comparing the condition to a predetermined limit and setting the operating mode based on the comparison (Figure 2), the fuel rate is determined when the throttle parameter is determined, therefore; fuel rate would also control engagement of the clutch.” [Office Action at Page 4]

Applicants respectfully request reconsideration of this rejection.

**A. Rejection of Independent Claims 1 and 10 Using Ward**

Independent Claim 1, as Currently Amended, claims a “vehicle master clutch engagement method, comprising the steps of: determining a dynamic throttle operating parameter value; and setting an operating mode of the clutch based on the dynamic throttle operating parameter value.”

Independent Claim 10, as Currently Amended, claims a “control system for engaging a vehicular master clutch that comprises an electronic control unit for receiving signals corresponding to a dynamic throttle operating parameter value, the electronic control unit setting an operating mode of the clutch based on the dynamic throttle operating parameter value.”

To anticipate a claim, the reference must teach every element of the claim. A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). The identical invention must be shown in as complete detail as is contained in the ... claim. *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

Therefore, to anticipate Claims 1 and 10, Ward would have to expressly or inherently describe or show a method or system where an operating mode of a clutch is set based on a dynamic

throttle operating parameter. It is respectfully submitted that Ward nowhere teaches or even suggests such a method or such a system.

The Examiner has stated that “Ward et al discloses a clutch control determining a throttle operating parameter value (THL), comparing the value to a threshold value (first reference value), setting an operating mode of the clutch based on the throttle comparison (command clutch to engage or disengage, column 2, lines 8-12), the parameter value corresponds to a throttle position.” [Office Action at Page 4]

Throttle position is not a dynamic throttle operating parameter, since it reflects only an instantaneous status of the throttle. Ward nowhere teaches or suggests the use of a dynamic throttle operating parameter, as claimed in claims 1 and 10, to set an operating mode for the clutch to use.

Accordingly, the teachings of Ward do not anticipate Claims 1 and 10.

**B. Rejection of Dependent Claims 4 and 13 Using Ward**

Dependent Claims 4 and 13, dependent upon Claims 1 and 10, respectively, are patentable over Ward by being dependent on independent claims which are allowable over Ward for the reasons provided above.

**C. Allowability of New Claims 30 and 33 over Ward.**

New dependent Claims 30 and 33, dependent upon Claims 1 and 10, respectively, are patentable over Ward by being dependent on independent claims which are allowable over Ward for the reasons provided above. Furthermore, new dependent Claims 30 and 33 have additional recitations nowhere taught or suggested by Ward. In particular, new dependent Claims 30 and 33 claim “the dynamic throttle operating parameter value corresponds to acceleration of throttle application.” Ward nowhere discusses using throttle application *acceleration* as a dynamic throttle operating parameter value and therefore cannot teach or suggest this recitation.

Accordingly, the teachings of Ward can not anticipate Claims 30 and 33.

**D. Rejection of Independent Claims 3 and 12 Using Ward**

Independent Claim 3, as Currently Amended, claims a “A vehicle master clutch engagement method, comprising the steps of determining a throttle operating parameter value; and setting an operating mode of the clutch based on the throttle operating parameter value, wherein the step of setting the operating mode is further defined by engaging clutch at an increasingly aggressive rate when the throttle operating parameter value is increasing.”

Independent Claim 12, as Currently Amended, claims a “A control system for engaging a vehicular master clutch that comprises an electronic control unit for receiving signals corresponding to a throttle operating parameter value, the electronic control unit setting an operating mode of the clutch based on the throttle operating parameter value, wherein the operating mode comprises engaging the clutch at an increasingly aggressive rate when the throttle operating parameter value is increasing.”

Therefore, to anticipate Claims 3 and 12, Ward would have to expressly or inherently describe or show a method or system where clutch engages at an increasingly aggressive rate when the throttle operating parameter is increasing. It is respectfully submitted that Ward nowhere teaches or even suggests such a method or such a system. In fact, Ward nowhere discusses the rate at which the clutch is engaged, let alone engaging the clutch at a rate dependent upon a throttle operating parameter.

The Examiner has stated that “. . .the clutch engagement is rapidly increased according to the throttle operating parameter increasing (from 0% to 100%), determining a vehicle operating condition ( engine or vehicle speed), comparing the condition to a predetermined limit and setting the operating mode based on the comparison (Figure 2). . .” [Office Action at Page 4] Applicant respectfully disagrees. Figure 2 nowhere teaches or suggests a rate of clutch engagement, but rather teaches a timing of clutch engagement.

Accordingly, the teachings of Ward do not anticipate Claims 1 and 10.

**E. Rejection of Dependent Claims 23 and 27 Using Ward**

Dependent Claims 23 and 27, dependent upon Claims 3 and 12, respectively, are patentable over Ward by being dependent on independent claims which are allowable over Ward for the reasons provided above.

**F. Rejection of Independent Claim 19 Using Ward**

Independent Claim 19, as Currently Amended, claims a “vehicle master clutch engagement method for use with a vehicle that includes a fuel controlled engine, a master clutch and a transmission, the method comprising the steps of: determining a desired fueling rate of the engine; and setting an increasingly aggressive engagement rate of the clutch when the desired fueling rate of the engine is increasing.”

For the reasons provided above with reference to Claims 1 and 10, Ward nowhere teaches or suggests setting an engagement rate of the clutch, let alone determining a clutch engagement rate based on a fueling rate.

The Examiner has stated that “. . . the fuel rate is determined when the throttle parameter is determined, therefore; fuel rate would also control engagement of the clutch.” [Office Action at Page 4] Applicants respectfully disagree. A teaching that input A can be used to control outputs B and C is not a teaching or suggestion that output B should be used to control output C or that output C should be used to control output B. Ward nowhere teaches or suggests that a fuel rate can or should be used to control the engagement of the clutch. Furthermore, even if the Examiner’s argument were correct, Ward still fails to teach or suggest regulating the rate of clutch engagement in response to the fuel rate, but instead only discusses controlling the timing of clutch engagement.

Accordingly, the teachings of Ward can not anticipate claim 19.

**G. Request For Withdrawal of Rejections Over Ward**

For at least the above reasons, Applicants submit that all claims now pending in the application are allowable over Ward. Applicants therefore respectfully request withdrawal of the rejection of Claims 1, 3, 4, 10, 12, 13, 19, 23 and 27 under 35 U.S.C. 102(b) over Ward.

### **CONCLUSION**

Reconsideration and allowance of the claims as now presented are respectfully requested. In view of the above amendment and remarks, Applicants believe the pending application is in condition for allowance. Accordingly, the Examiner is respectfully requested to pass this application to issue.

It is believed that any fees associated with the filing of this paper are identified in an accompanying transmittal. However, if any additional fees are required, they may be charged to our Deposit Account 18-0013, under Order No. 65856-0075 from which the undersigned is authorized to draw.

Dated: February 12, 2008

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